ESD Protection Diode : TEUSD323R0R8B

SOD323 package ultra-low capacitance type

■ Features

1. RoHS compliant and halogen-free
2. Working voltage: 3.3V
3. Ultra-low capacitance: 0.8pF
4. Low clamping voltage
5. Low leakage current
6. IEC 61000-4-2 (ESD) ±30KV (air), ±30KV (contact)

■ Recommended Applications

1. Notebooks, Desktops, Servers
2. USB interface
3. Personal Digital Assistant (PDA)
4. Networking and Telecom (Ethernet 10/100/1000 Base T)

■ Mechanical Data

1. Case: SOD-323, molded plastic meets UL flammability rating 94V-0
2. High temperature soldering guaranteed: 260℃/10 seconds
3. Meets MSL level 1, per J-STD-020

■ Part Number Code

T	E	U	S	D	3	2	3	R	0	R	8	B
1	2	3	4	5	6	7	8	9	10	11	12	13

Product Series	
TE	THINKING ESD Transient Voltage Suppression Diodes

Type Code	
D	Standard Capacitance >10pF
L	Low Capacitance >1pF, ≦10pF
U	Ultra-low Capacitance ≦1pF

Package	
SD32	SOD-323, 2pins
ST23	SOT-23, 3pins
D102	DFN1006, 2pins
D062	DFN0603, 2pins

Reverse Stand off Voltage(V_{RWM})	
3R	3.3V

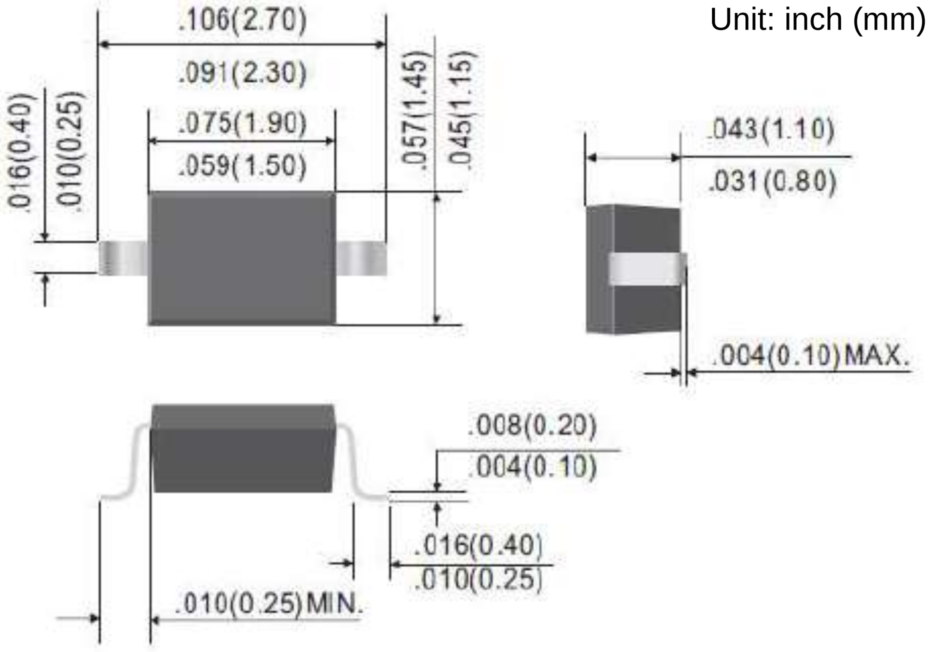
Junction Capacitance(Cj)	
0R8	0.8pF
030	3.0pF
03D	3.3pF
100	10pF

Type Code	
U	Uni-directional
B	Bi-directional,

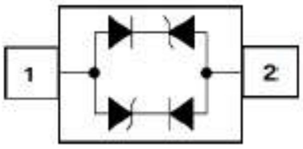
■ Structures and Dimensions

SOD-323

Unit: inch (mm)



■ Schematic & PIN Configuration



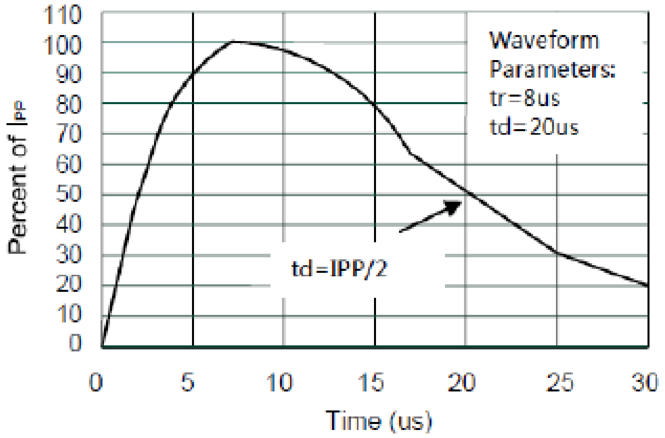
■ Maximum Rating (Rating at 25℃ ambient temperature unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power (tp= 8/20μs waveform)	P_{PPM}	350	W
Peak pulse current (tp= 8/20μs waveform)	I_{PP}	20	A
ESD per IEC61000-4-2 (Air) ESD per IEC61000-4-2 (Contact)	V_{ESD}	±30 ±30	KV
Operating junction temperature	T_J	-55~+125	ºC
Storage temperature range	T_{STG}	-55~+150	ºC

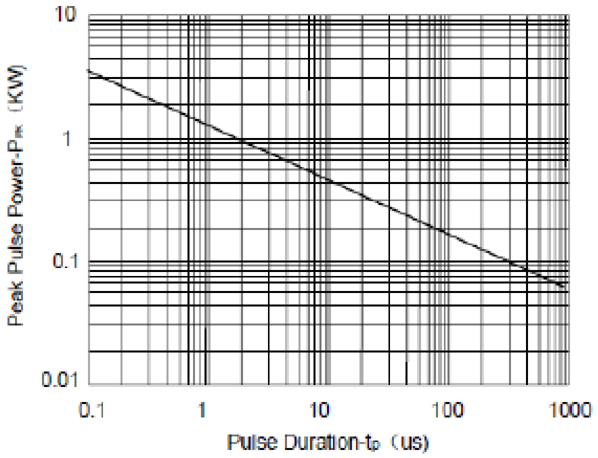
■ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V_{RWM}	-			3.3	V
Breakdown Voltage	V_{BR}	IR =1mA	4			V
Reverse Leakage Current	I_R	V_{RWM}=5V			5	μA
Clamping Voltage	V_c	Ipp =1A, tp= 8/20μs			7.5	V
Junction Capacitance	Cj	V_R=0V，f=1MHz		0.8	1.5	pF

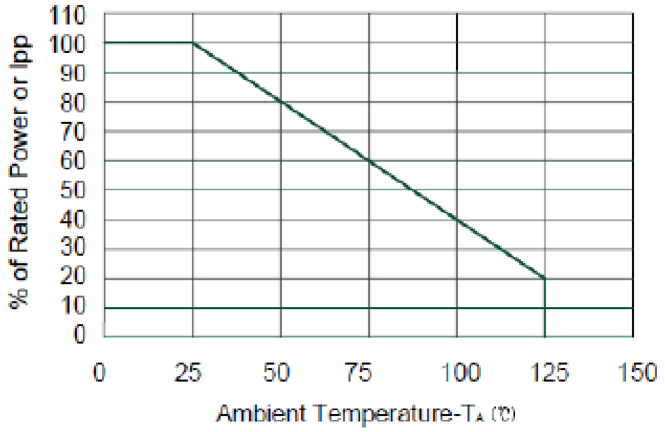
■ Rate and Characteristic Curve (T_A=25℃ unless otherwise noted)



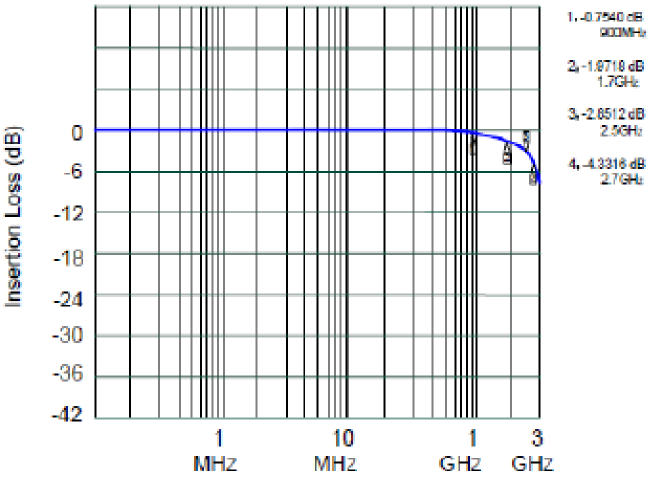
Pulse Waveform



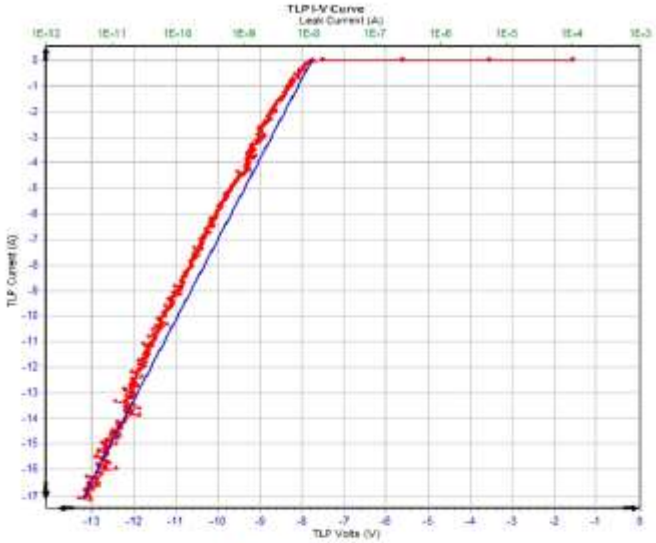
Non-Repetitive Peak Pulse Power vs. Pulse Time



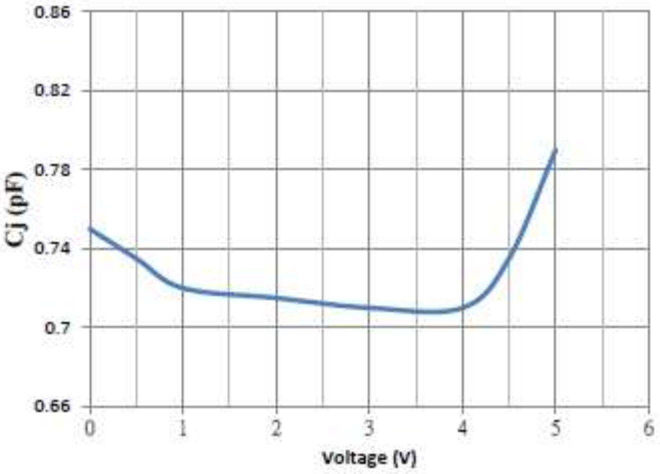
Power Derating Curve



Insertion Loss S21

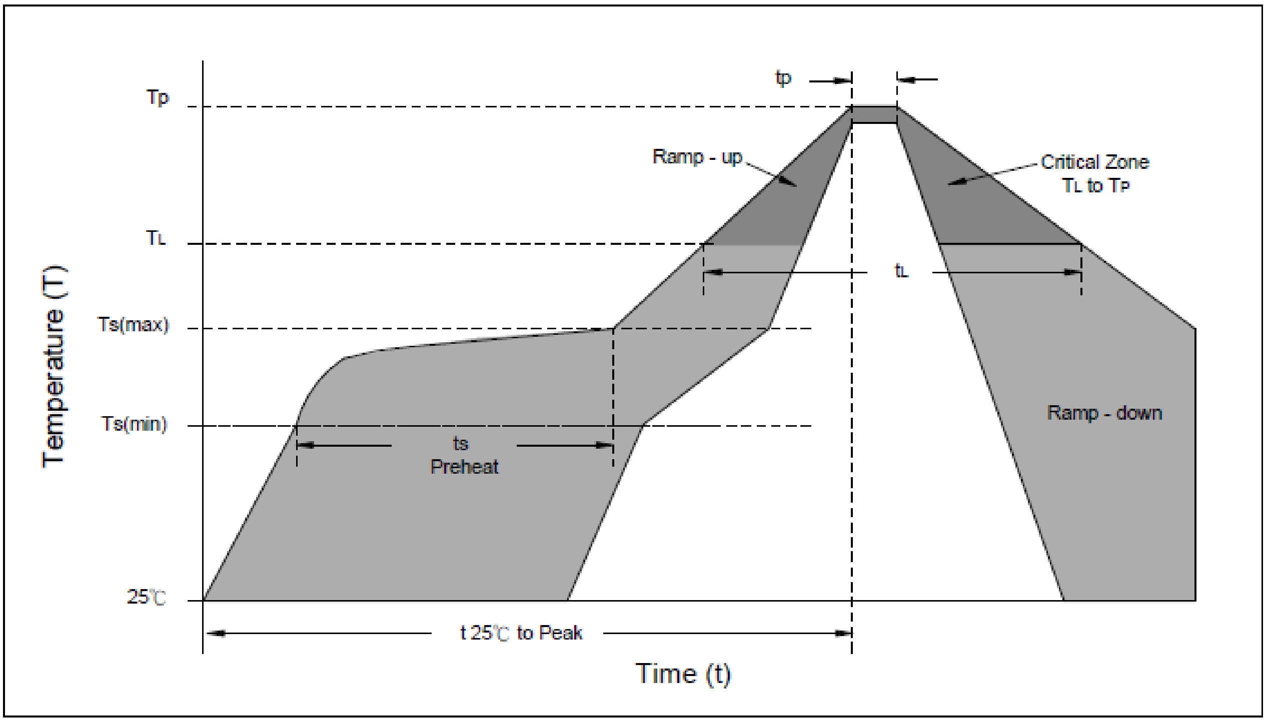


TLP Measurement



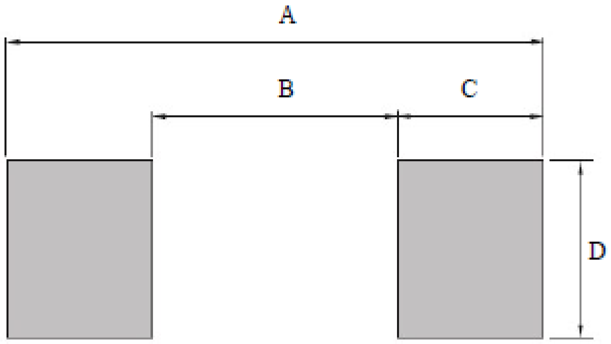
Capacitance vs. Reverse Voltage

■ Soldering Recommendation



Reflow Condition	Lead-free assembly
Preheat -Temperature Min(Ts min) -Temperature Min(Ts max) -Time (min to max) (ts)	150℃ 200℃ 60 – 180 seconds
Average ramp up rate -Temperature Liquidus (TL) to peak	3℃/second max
Ts(max) to TL -Ramp-up Rate	3℃/second max.
Reflow -Temperature Liquidus (TL) -Time (tL)	217℃ 60 – 150 seconds
Peak Temperature (TP)	260℃
Time within 5℃ of actual peak Temperature(tP)	20 – 40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to peak Temperature(TP)	8 minutes max.
Do not exceed	260℃

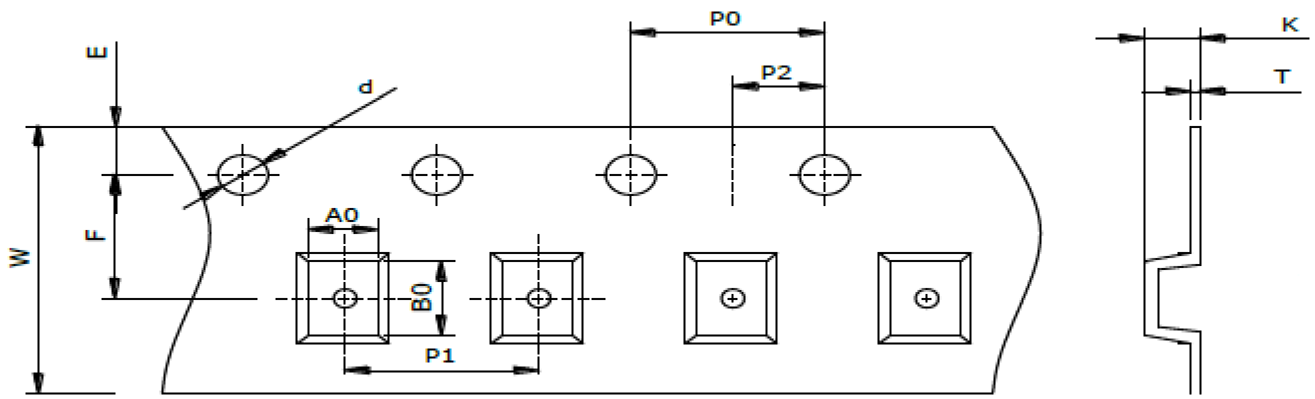
■ Recommended Soldering Pad Dimensions

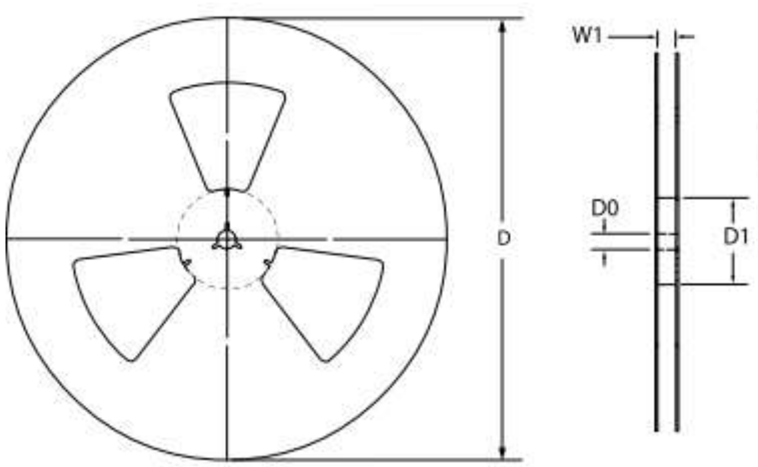


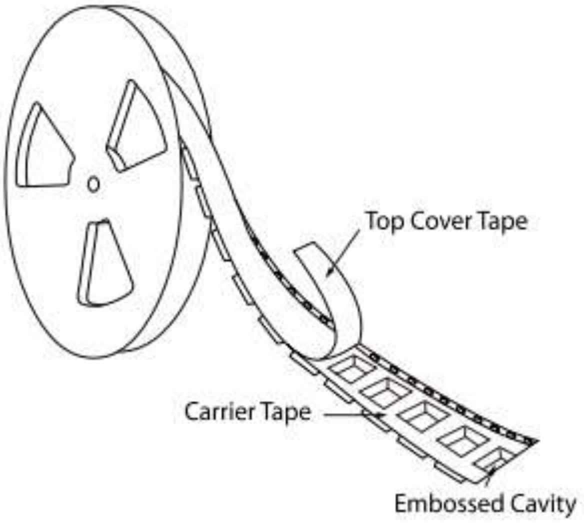
Unit: mm

Package Type	A	B	C	D
SOD-323	2.85	1.45	0.70	0.70

■ Packaging







Item	Symbol	SOD-323 (Unit: mm)
Carrier width	A0	1.50 ± 0.10
Carrier length	B0	3.30 ± 0.10
Carrier length	K0	0.95 ± 0.10
Sprocket hole	D0	1.50 ± 0.10
Reel outside diameter	E	1.75 ± 0.10
Feed hole width	F	3.50 ± 0.10
Reel inner diameter	P0	4.00 ± 0.10
Sprocke hole position	P1	4.00 ± 0.10
Punch hole position	P2	2.00 ± 0.10
Sprocke hole pitch	T	0.20 ± 0.05
Punch hole pitch	W	8.00 ± 0.20
Embossment center	d (7")	178.00 ± 2.00
Overall tape thickness	d1	MIN. 54.00
Tape width	d0	13.00 ± 0.20
Reel width	w1	MAX. 13.50

■ Quantity

Package Type	Reel Size (inch)	Reel (Kpcs)
SOD-323	7	3

■ Warehouse Storage Conditions of product

● Storage condition:

1.Storage Temperature: -10℃~+40℃

2.Relatiive Humidity: ≦75%RH

3.Keep away from corrosive atmosphere and sunlight.

● Period of Storage: 1 year.